UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/543,674	04/07/2000	Marco C. Heddes	RAL9-00-0006	2001

			EXAMINER
25299	7590	09/08/2004	TRAN, TONGOC

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ART UNIT	PAPER NUMBER
2134	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/543,674	HEDDES ET AL.
	Examiner	Art Unit
	Tongoc Tran	2134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/28/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to Applicant's amendment filed on 5/11/2004.

Claims 1,7, 19 and 31 have been amended. Claims 37-42 have been added. Claims 1-

42 are pending.

Information Disclosure Statement

2.   The information disclosure statement filed on 4/28/2004 fails to comply with the

provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because there is no translation

provided with the Japanese patents. It has been placed in the application file, but the

information referred to therein has not been considered as to the merits. Applicant is

advised that the date of any re-submission of any item of information contained in this

information disclosure statement or the submission of any missing element(s) will be the

date of submission for purposes of determining compliance with the requirements based

on the time of filing the statement, including all certification requirements for statements

under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

Claims 1-42 are rejected under 35 U.S.C. 101 because they are directed to non-

statutory subject matter.

"claims define nonstatutory processes if they:

-consist solely of mathematical operations without some claimed practical

application (i.e., executing a "mathematical algorithm"); or

-simply manipulate abstract ideas. E.g., a bid (*Schrader*, 22 F. 3d at 293-94, 30

USPQ2d at 1458-59) or a bubble hierarchy (*Warmerdam*, 33 F.3d at 1360, 31 USPQ2d

at 1759), without some claimed practical application" (MPEP 2106).

Response to Arguments

4.   Applicant's arguments with respect to claims 1, 7, 13, 19, 31, 2, 8, 14, 20 and 32

have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, and 35 are

rejected under 35 U.S.C. 103(a) as being unpatentable over DeLong et al. (U.S. Patent

No. 6,230,231, hereinafter DeLong) in view of Chin (U.S. Patent No. 5,852,607).

In respect to claims 1 and 7, DeLong discloses the method of providing a hash

and a complement of the hash for an item in a computer system, the method comprising

the steps of:

(a) providing a plurality of component from the item, the plurality of components including a first component and a last component, each of the plurality of components including a first component and a last component, each of the plurality of component including a particular number of bits (see DeLong, col. 2, lines 15-30);

(b) cascading the plurality of component through at least one XOR to provide a plurality of resultant, the plurality of resultants including a first resultant and a final resultant, the final resultant including only the last component and the first resultant including an XOR of the first component and remaining cascaded components of the plurality of components (see DeLong, col. 2, lines 15 to col. 3, line 20); and

(c) applying an invertible hash function to at least the first component of the plurality of components (see DeLong, col. 2, line 51-col. 3, line 20 and col. 5, lines 1-20 and col. 6, lines 29-60, reversing hash calculation) but does not explicitly discloses applying a complement and XOR the resultant after the hash function. However, Chin discloses applying a complement and XOR the resultant after the hash function (see Chin, col. 5, line 65-col. 6, line 38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the 1s complement and XOR the resultant taught by Chin with the hashing operation in the MAC address taught by DeLong for a speedier search.

In respect to claim 3, DeLong and Chin disclose the method of claim 1, wherein each of the plurality of components includes thirty-two bits (see DeLong, col. 1, lines 45-48).

In respect to claim 5, DeLong and Chin disclose the method of claim 1 wherein the invertible hash function and the invertible hash function complement providing step (c) further includes the steps of:

(c1) applying the invertible hash function and the invertible hash function complement to each of the plurality of resultants, the hash including the invertible hash function and the invertible hash function complement of the first resultant, the complement of the hash including the invertible hash function and the invertible hash function complement of each of the plurality of resultants except the first resultant (see DeLong, col. 2, line 58-col. 3, line 8).

In respect to claims 9, DeLong and Chin disclose the claim limitations are substantially similar to claims 3 therefore the same rejection applied.

In respect to claim 11, DeLong and Chin disclose the method of claim 7, wherein the invertible hash function and the invertible hash function complement providing step (b) further includes the steps of:

(b1) applying the invertible hash function and the invertible hash function complement to each of the plurality of components (see DeLong, col. 2, lines 15-30 and col. 2, line 58-col. 3, line 8).

In respect to claims 13, 15 and 17, the claim limitations are computer readable medium claims that are substantially similar to method claims 1, 3 and 5. Therefore, claims 13, 15 and 17 are rejected based on the similar rationale.

In respect to claims 19, 21 and 23, the claim limitations are computer readable medium that are substantially similar to method claims 7, 9 and 11. Therefore, claims 19, 21 and 23 are rejected based on the similar rationale.

In respect to claims 25, 27 and 29, the claim limitations are system claims that are substantially similar to method claims 1, 3 and 5. Therefore, claims 25, 27 and 29 are rejected based on the similar rationale.

In respect to claims 31, 33 and 35, the claim limitations are system claims that are substantially similar to method claims 7, 9 and 11. Therefore, claims 31, 33 and 35 are rejected based on the similar rationale.

6.   Claims 2, 8, 14, 20, 26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeLong et al. (U.S. Patent No. 6,230,231) in view of Chin (U.S. Patent No. 5,852,607) and further in view of Debis et al. ("Using Self-Organizing Maps t Learn Geometric Hash Functions for Model-Based Object Recognition", IEEE Transactions on Neural Networks, Vol. 9, No. 3, May 1998, hereinafter Debis)

In respect to claim 2, DeLong and Chin disclose the method of claim 1, but does not disclose wherein the hash function is a geometric hash function. However, Debis discloses geometric hashing is a well known technique that is based on idea of storing information about the models in a table, using a hashing scheme (see Debis, page 560, col. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modified the hash function discloses by DeLong with the

geometric hash function discloses by Debis to improve speed on data retrieval on model based object.

In respect to claims 8, 14, 20, 26 and 32, the claim limitations are substantially similar to claim 2. Therefore, claims 8, 14, 20, 26 and 32 are rejected based on the similar rationale.

In respect to claim 37, DeLong and Chin disclose the method of claim 2 wherein the invertible hash function applying step (c) further includes the steps of:

(c1) dividing the at least the first resultant into a plurality of subsets of equal length, the plurality of subsets including a first primary subset and a second primary subset; (c2) selecting the at least the first resultant into a plurality of subsets of equal length, the plurality of subsets including a first primary subset and a second primary subset; (c3) dividing a space defined by the first primary subset and the second primary subset into a plurality of regions including an origin region; (c4) flipping the first primary subset and the second primary subset into the origin region; (c5) concatenating a portion of the first primary subset and the second primary subset after flipping with most significant bits of a remaining portion of the plurality of subsets to provide the hash; and (c6) determining the complement of the hash using the remaining portion of the plurality of subsets (see Chin, col. 5, line 65-col. 6, line 38).

In respect to claims 38-42, the claim limitations are substantially similar to claim 37. Therefore, claims 38-42 are rejected based on the similar rationale.

7.   Claims 4, 10, 16, 22, 28 and 34 are rejected under 35 U.S.C. 103(a) as being

unpatentable over DeLong et al. (U.S. Patent No. 6,230,231) in view of Chin (U.S.

Patent No. 5,852,607) and further in view of Craig Hunt ("TCP/IP Network

Administration", Second Edition, O'Reilly & Associates, Inc., 1998, page 13).

In respect to claim 4, DeLong and Chin disclose the method of claims 1 wherein

the final component includes a plurality of bits used to pad the final component to the

particular number bits. However, Hunt discloses last component of an IP header

includes a plurality of bits of padding (see Hunter, page 13). It would have been

obvious to one of ordinary skill in the art at the time the invention was made to use

include padding in the past component of the header address taught by Hunt for the

purpose of providing the size of the component with equal length.

In respect to claims 10, 16, 22, 28 and 34, the claim limitations are substantially

similar to claim 4. Therefore, claims 10, 16, 22, 28 and 34 are rejected based on the

similar rationale.

8.   Claims 6, 12, 18, 24 30 and 36 are rejected under 35 U.S.C. 103(a) as being

unpatentable over DeLong et al. (U.S. Patent No. 6,230,231) in view of Chin (U.S.

Patent No. 5,852,607) and further in view of Bruce Schneier ("Applied Cryptography,

Protocols, Algorithms, and source Code in C", second edition, John Wiley & Son, Inc.,

1996, page 237).

In respect to claim 6, DeLong and Chin disclose the method of claim 1 but does

not explicitly discloses further comprising the step of:

(d) providing a permutation of at least one component of the plurality of components. However, Schneier discloses a technique that causes diffusion through transposition (permutation) of messages (see Schneier, page 237, 4th paragraph). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the technique of permutation with DeLong's teaching in order to dissipates the redundancy of the plaintext by spreading it out over the ciphertext so that cryptanalyst looking for those redundancies will have a harder time finding them (see Schneier, 137, 4th paragraph).

In respect to claims 12, 18, 24, 20 and 36, the claim limitations are substantially similar to claim 6. Therefore claims 12, 18, 24 and 36 are rejected based on the similar rationale.

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tongoc Tran whose telephone number is (703) 305-7690 or (571) 272-3842 after 10/21/2004. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory A. Morse can be reached on (703) 308-4789 or (571) 272-3838 after 10/21/2004. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Tongoc Tran
Art Unit: 2134

September 3, 2004

TT

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